III. REPORT OF THE IMPACT ASSESSMENT SUBGROUP

The Impact Assessment Subgroup discussed the impacts of the deferrals and the prospect of completing a detailed Economic Impact Assessment (EIA). Given the time available and the practicality that completing a comprehensive EIA would take several months to a year, the subgroup prepared the attached "Elements of Impact" papers on Highway Reconstruction, Bridges, Pavement Preservation and Jobs. In short, there was consensus among the subgroup that the deferral of $130 million in transportation projects would be significant and widespread but very difficult to put a specific dollar figure to without further study. Therefore, the attached papers evaluated the following factors which illustrate some of the impacts of the deferrals:

- Safety – Each deferred project improves safety. Any accidents that occur on deferred projects are unacceptable if future accidents could be avoided by securing resources now. Impacts range from a few thousand dollars to well in the millions based on such factors as the number of fatalities, injuries, property damage, emergency response costs, traffic delays related to crashes, etc.

- Jobs – Based on federal estimates and conversations with Maine industry experts, hiring freezes or slow downs are already in place, and the $130 million deferral could translate to between 2,500 and 1,000 lost jobs annually. The vast majority of these jobs provide livable to exceptional wages with full benefits.

- Inflation – Depending upon inflation rate assumptions, delaying $130 million in transportation investments two years readily translates to at least $10.6 million in increased costs using a very conservative 4% annual rate to over $33 million based on a potential 12% annual average rate in a construction industry dependent upon fuel and competing globally for construction materials.

- Future Capital Programs – If a solution is not identified to fund these projects before the next fiscal cycle, new projects in MaineDOT's next capital program will be extremely limited perpetuating the backlog of unfunded transportation needs and unfunded economic opportunities statewide.

- Real Estate Costs – Many transportation projects involve real estate acquisition. Although the impact will vary based on project location, simply waiting to purchase land for some projects could add up to 10% annually for some project cost components.

- Community & Regional Impacts – Deferments have different impacts at the state, regional and local level. Some project deferrals will impact regional mobility and others will jeopardize millions in private local investments.

- Posted Roads – The deferrals hold the potential to increase posted roads over the next two years creating significant detour routes for heavy vehicles which exponentially increase the cost of transportation for Maine businesses.

- Deferred Maintenance – MaineDOT maintenance forces may forgo basic maintenance on non-deferred projects to perform work on current deferred projects. This leads to higher future costs as actions such as sand removal, improved drainage, etc. are canceled shortening the lifespan of other transportation infrastructure.

- Jobs for Maine Youth and Maine College Graduates – Lost jobs and potential layoffs will lead to less recruiting by the transportation industry and fewer

opportunities for Maine college graduates and occupational and trade school graduates. If the deferrals stay intact, the desire to keep young People in Maine could be undermined.

- Changes in Scopes of Work – In addition to inflation, delaying paving, highway and some bridge projects for two years will require more costly treatments due to highway and bridge deterioration that will take place over this time period.

A. Elements of Impact: Jobs

Transportation investments create jobs. MaineDOT has consistently contracted out a significant amount of its design work and virtually all of its construction to consultants and contractors, which provides jobs to thousands of people throughout Maine. Although quantifying the job impact associated with the $130 million deferral is extremely difficult, estimates range from a maximum of 2,500 to at least 1,000 jobs lost based on Federal Highway Administration estimates and proprietary discussions with Maine design firms and construction consultants. Although a specific number could be the subject of immense debate, deferring $130 million will result in significant lost jobs and freezes or reductions in hiring. It should also be noted that both design consultants and construction industry jobs provide more than just a livable wage but provide desirable salaries and benefits. These jobs directly support Maine-based businesses and provide opportunities for Maine's young people to gain meaningful employment within Maine. These jobs are interspersed throughout the state and are among the highest paying in some regions. Maine design firms have already been laying off engineers or not hiring their usual complement of graduates as a result of decreased transportation investments over the last several years.

1. Need for a Consistent Capital Program – Engineering/Design Firms.

In order for an efficient capital program and productive labor force, MaineDOT must have a relatively consistent capital program. Peaks and valleys in spending translate to periods of hiring and laying off of employees. Maine-based design firms need to have competent staff to remain competitive with out-of-state firms and are particularly susceptible to being impacted by the deferrals. Although a section of highway may remain drivable after a two-year period, this delay in engineering and design work translates to labor and cash-flow challenges for Maine firms. Businesses may reduce staffing or close altogether. Once funding is restored, these same Maine businesses will be at a competitive disadvantage with larger out-of-state firms able to endure the deferrals by shifting work elsewhere. Consequently, the two-year delay associated with these deferrals may result in irrecoverable losses for small Maine-based businesses.

Real Life Example: Construction Jobs Pay Livable Wages & Provide Opportunities

An employee trained in vocational school began earning about $6 per hour as an equipment operator out of high school. Although he was hired with a troubled past, the company took a longer-term view of his employment. It discussed with him a five-year plan to bring value to himself, the company and the community if he focused. The company suspected that his life would parallel his success on the job, and it has.

He is currently one of the top operators in the state, and his life has been fulfilled in ways he never dreamed of when he joined the company. Although he works long hours, his efforts on the company's behalf have improved his life dramatically:

- He now earns between $45,000-$50,000 per year
- At 28 years old, he has over $40,000 invested in his 401(k) plan
- He enjoys the benefit of health insurance
- He recently built a home and welcomed his new baby son into it

This employee understands what commitment is, and the multifaceted rewards that can happen through hard work and dedication.

2. Need for a Consistent Capital Program – Construction Firms.

The impact of a $130 million deferral on the construction industry jobs is more pronounced because most of this funding is associated with construction. In order for Maine construction firms to remain competitive, they must invest in new technologies, training and capital equipment. These investments translate into millions spent in the Maine economy each year and result in lower cost, more efficient transportation projects built by better-trained employees, using innovative technology and state-of-the art construction equipment. Peaks and valleys in the construction industry not only preclude many of these investments but also result in periods of hiring and layoffs.

Real Jobs for Maine Graduates

Quality entry-level jobs are essential for Maine college graduates looking to remain in the state. MaineDOT, design and construction firms:

- Regularly recruit on Maine campuses
- Offer internships to Maine college students
- Regularly hire Maine graduates
- Provide additional career training and lifelong employment opportunities for Maine graduates

3. Highway & Bridge Skills Not Readily Transferable.

Although many of the design and construction firms impacted by the deferrals also work for private industries and municipalities, the skills required for highway and bridge design and heavy construction are not readily transferable to these other sectors. For example, designing a major arterial highway such as Route 26 in Poland is significantly more complicated than designing a subdivision road network, and the equipment and construction skills needed to replace bridges is not readily transferable to building retail stores. In short, both design firms and the construction industry maintain staff that work predominantly on MaineDOT projects. If these skilled employees are laid off as a result of the deferrals, they would likely be forced to seek employment outside of Maine, find jobs in different industries or receive public assistance.

B. Elements of Impact: Highway Reconstruction

Maine is generally a sparsely populated rural

Route 109 in Wells

Highway Reconstruction deferrals include two projects on Route 109 in Wells shown in the adjacent photograph. Delaying this project has the following effects:

- Multiple High Crash Locations or unsafe highway sections remain unfixed.
- Unsafe soft shoulders provide little room for driver error.
- Inadequate sidewalks and limited or no shoulders remain for bicyclists and pedestrians.
- Over 8,000 vehicles a day cope with a highway not built for this traffic volume.
- Access to Sanford and beyond from the Maine Turnpike suffers.

state with over 8,000 miles of state- owned highways, of which almost 2,000 primary highway miles are unbuilt which means they have never been constructed to modern standards. These highways may have inadequate drainage, base, pavement, sight distance or width. For the past decade, MaineDOT has aggressively reconstructed highways throughout the state increasing safety, reducing travel time, and supporting transportation mobility. MaineDOT has also started to focus on highway improvements in village and urban areas. All highway reconstruction projects are major investments with average costs in the millions of dollars.

1. Impacts of Deferral.

Of the $130 million in project deferments, over $82 million is in highway reconstruction. While the magnitude of deferring these projects will be dispersed throughout the state and is difficult to calculate, the following factors illustrate some of its significance:

- Inflation - Inflation alone will result in millions of dollars in add future costs simply by waiting two additional years for these projects. For example, if we apply a conservative annual construction inflation rate of 4% to this $82 million, it would cost approximately $88.7 million for the same work in just two years later. Applying a more realistic 7% annual inflation rate would cost almost $93.9 million or $11.9 million more.

- Safety - Highway reconstruction projects make highways safer. The specific safety improvements vary based on the conditions of highways before reconstruction projects. However, highway reconstruction projects regularly improve sight distance, include intersection reconfigurations, and may add guard rails or improve drainage to keep water off roads, minimizing potentially hazardous conditions. While it would be nearly impossible to quantify the safety impact of these deferrals, putting these projects off for two years perpetuates the risks of unsafe highways. Any accidents that occur on deferred projects represent an unacceptable impact if the accidents could have been avoided by securing resources now. Accidents directly impact the economy. Impacts range from a few thousand dollars to well in the millions based on such factors as the number of fatalities, injuries, property damage, emergency response costs, traffic delays related to crashes, etc.

- Right-of-Way-Costs - Highway reconstruction projects almost always require the purchase of real estate, or “right of way.” Real estate costs, particularly in Southern Maine, are increasing as much as 7-10% a year, (based on several current projects underway in Gorham, Biddeford and Gray.) Real estate costs are such a significant part of

overall transportation project costs, that the price of real estate in certain projects, such as the future Gorham Bypass could exceed the project's construction costs. Additionally, property owners will be impacted during the deferral period. They may be unable to sell their property and they could be frustrated due to uncertainty regarding if or when the state will be acquiring their property.

- Cumulative Effect on Other Projects - This $82 million in highway reconstruction deferrals affects more than just the projects directly associated with it. Unless new resources are identified, this population of projects will be included in the FY2008-FY2009 Capital Work Plan, displacing additional projects which will likewise be delayed. Since MaineDOT is already unable to meet many identified transportation needs, this deferral will exacerbate the ongoing trend of transportation needs growing at a higher rate than MaineDOT's ability to fund them.

Route 1 in Thomaston

Highway Reconstruction deferrals include one project in Thomaston shown in the adjacent photograph. Postponing this project has the following effects:

- Delay of a hotel, restaurant and Federal Credit Union which are under construction but require highway alterations.
- Delay of a $2.3 million municipal wastewater project.
- Local economic plans and future growth efforts in support of Thomaston's Pine Tree Zone are also supported by this project.

- Impacts on Regions/ Communities and Abutters - Multi million dollar transportation investments have related but different effects at the state, regional or local level. At the regional level, coordinated transportation investments may significantly reduce travel time within an entire region. At the local level, transportation investments are often catalysts for economic opportunities and/ or other investments such as utility upgrades. For example, transportation resources often leverage Community Development Block Grants and other funding sources. For an abutter on a highway with poor drainage, a highway reconstruction project translates into the absence of minor flooding after each significant rainfall. While it may be impossible to apply a dollar figure to these impacts, they illustrate that transportation affects people differently depending upon their perspective. What might be considered a simple delay at the state level is significant if it translates to a missed opportunity to expand tourism initiatives at a regional level, losses in other revenue at the state level or added costs for a homeowner coping with flooding and waste water runoff.

- Highway Postings - Maine has over 1,800 miles of public roads that are seasonally posted to heavy vehicles to avoid significant infrastructure damage during spring freeze/ thaw cycles. Each time a road is posted, truck traffic must go through varying but expensive detours that take additional time and use more fuel. Although MaineDOT will make every effort to avoid posting any highway projects on this list, conditions in the spring could require additional road postings.

C. Elements of Impact: Bridges

MaineDOT is responsible for capital improvements and maintenance to over 2,700 bridges. MaineDOT's goal for bridge investments is to take the most practical actions which may include bridge replacement, rehabilitation or maintenance activities to minimize the costs to each bridge over its life span. Over the past decade, bridge needs have grown more acute with many of the post-depression era bridges reaching the end of their useful life and required capital improvements on several very large expensive bridges. For example, about 250 bridges and culverts have exceeded their normal life span and the state is currently working on a number of major multi-million bridge projects including the Augusta-Memorial Bridge, Deer Isle/ Sedgwick Bridge, Norridgewock Covered Bridge, and the Kittery Memorial Bridge to name a few.

1. Impacts of Deferral.

Of the $130 million in project deferrals, $19 million is in the Urban and Federal Bridge Program, which include 12 bridge projects that will be deferred. The impacts of these deferrals will vary based on the future costs of construction materials and future funding for transportation.

Leeds/ Turner Bridge

Bridge deferrals include the replacement of this structure on Route 219 over the Androscoggin River.

This bridge is vital for east-west transportation for many small Maine municipalities. It carries over 3,200 vehicles per day including a significant number of heavy vehicles.

This deferral will lead to higher future costs to replace the bridge but could prove disastrous if the bridge was posted for heavy vehicles or closed considering the approximate 20 mile and over 30 minute detour route.

- Multiple High Crash Locations or unsafe highway sections remain unfixed.
- Inadequate sidewalks and limited or no shoulders remain for bicyclists & pedestrians
- Over 8,000 vehicles a day cope with a highway not built for this traffic volume..
- Access to Sanford and beyond from the Maine Turnpike suffers.

- Inflation - Based on a recent informal survey on inflation and construction materials, bridge costs have increased dramatically. For example, MaineDOT estimates that the cost of steel girders fabricated and delivered today will be 25% to 35% more than just 18 months ago. Costs of other materials such as tubular steel, reinforcing bars, wire strand, and cement have risen even more dramatically. Although MaineDOT bridge engineers and technicians have been working diligently to find ways to do more with less in order to obtain the highest possible benefit given limited resources, the impact of time on this $19 million in bridge deferrals will be significant. Assuming a modest annual increase of 10% due to inflation and construction materials, the same $19 million bridge investment today will cost almost $23 million in just two years.

- Impact on Maintenance Activities - As indicated above, MaineDOT attempts to optimize bridge investments to minimize bridge life-cycle costs. These investments vary and include everything from bridge replacement and rehabilitation projects to bridge painting and a range of bridge maintenance activities. An example of a bridge maintenance activity could be as simple as improving drainage and

clearing salt from bridge structures. Over time, debris and salt can damage a bridge, leading to much higher costs than a maintenance activity or shortening a bridge's lifespan. However, when capital funding is insufficient, State maintenance forces may be redirected from conducting routine preventative maintenance activities to performing urgent (holding action) repairs on bridges such as ones currently deferred. This leads to not only future higher costs for other bridge structures but will likely increase the number of posted bridges (including closures).

While the impact of reallocating maintenance forces is about as difficult to quantify as the risk of skipping an oil change in a personal automobile, overtime these risks will lead to significant costs. Furthermore, the economic impacts associated with bridges constitutes a slippery slope that varies tremendously. At one level, deferring maintenance activities leads to higher future capital costs. However, this increases the risk of future bridge postings. If a bridge becomes posted to heavy vehicles, depending upon detour routes and truck traffic volume on the bridge, the economic impact on travelers becomes significant. If a bridge deteriorates to the point that it is closed, an entire region of the state may experience considerable impacts.

- Impact on Entire Capital Program - While bridges represent a vital part of the transportation system, there are few bridge advocates outside of MaineDOT. For example, MaineDOT regularly receives over 1,000 requests for highway projects, intersection improvements, pedestrian trails, transit assistance and other projects that would costs billions of dollars to fund. By comparison, the department rarely receives requests for bridge improvements. MaineDOT is simply expected to maintain bridges in an adequate condition; bridges seldom get noticed unless there is a catastrophic failure. However, when bridges fail,

Donnells Bridge, Ogunquit

Bridge deferrals include engineering funding for future improvements to this structure on Route 1 in Ogunquit: Donnells Bridge:

- Carries up to 17,000 vehicles a day in the summer
- Connects two of Southern Maine's major tourism destinations
- Serves many bicyclists and pedestrians.

As indicated in the photographs this bridge is in poor conditions and is inadequate for significant bicycle and pedestrian traffic. There have been numerous "near misses" and at least one recent accident involving a bicyclist.

the entire transportation system will be impacted with often significant detour routes.

Over the past several biennia, bridges have represented 17-20% of MaineDOT's capital program. However, the $19 million in bridge deferrals exacerbates a declining trend in funding compared to an increased trend in bridge needs. For example, MaineDOT currently estimates that bridge needs in the next capital program at $112 million or approximately $40 million more than the past two capital programs. As a higher percentage of the department's capital budget is shifted to bridges, investments in other transportation projects with more tangible economic opportunities such as time saving mobility improvements, new roads opening up areas to development and congestion alleviation projects will need to be reduced.

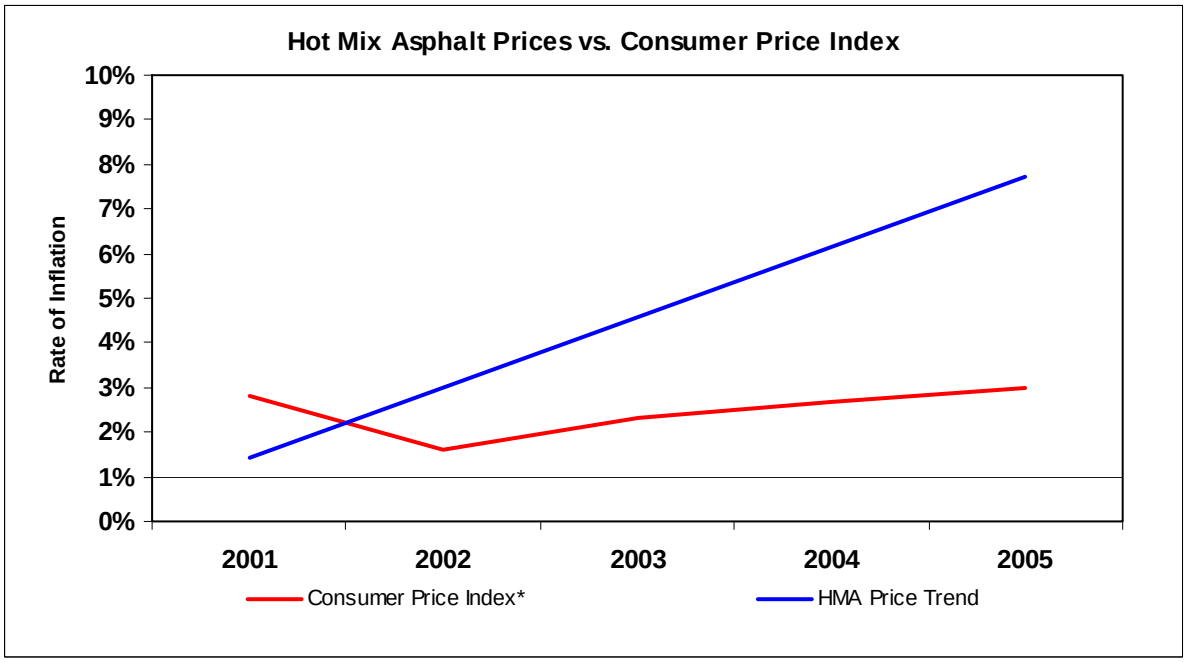
D. Elements of Impact: Pavement Preservation

MaineDOT spends millions of dollars each year reconstructing highways throughout the State. These are major construction projects that average over one million dollars per project. They typically include new road bases, sight distance improvements, shoulders, guard rails, improved drainage, etc. Once roads are fully reconstructed, they may last almost indefinitely, as long as they are adequately maintained. MaineDOT's pavement preservation philosophy is to apply the most cost-effective treatment at the proper time to maintain previous multi-million investments. Although it may seem counterintuitive to apply crack-sealing or a light pavement on a road that appears to be in good condition compared to other roads, pavement preservation optimizes resources by applying low cost treatments to preserve previous investments. By way of comparison, pavement preservation is analogous to re-shingling a roof before the entire roof fails.

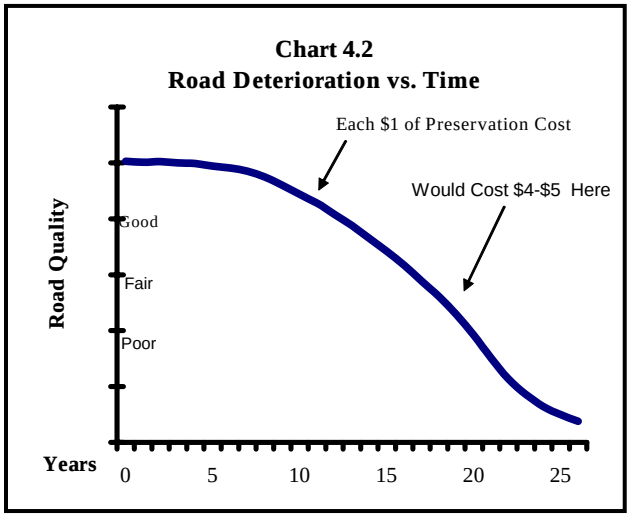
1. Impacts of Deferral.

Of the $130 million in project deferrals, over $13 million is in pavement preservation. The impacts of these deferrals will vary based largely on inflation and on the potential for higher costs treatments needed due to highway deterioration during the deferral period.

- Inflation - The deferral of pavement preservation projects will be significantly impacted by inflation. Pavement preservation treatments utilize liquid asphalt a petroleum byproduct. Even prior to recent increased demand related to hurricanes, the market for liquid asphalt has proven to be extremely volatile. As indicated in the graph below asphalt prices have increased dramatically when compared to the Consumer Price Index.



- Higher Cost Treatments - MaineDOT strives to apply the most cost effective pavement treatments at the most appropriate time in the lifecycle of a highway. Once a highway begins to deteriorate, the costs to make the improvements that bring the highway to the proper condition may rise exponentially. If all pavement preservation projects currently deferred require a different scope of work and more costly treatment, these costs which are in addition to inflation could reach $7 million. The $7 million assumes that each deferred pavement preservation project would require a higher treatment due to the two-year delay.



Pavement Treatments

Pavement treatments per project vary based on road condition. Costs can vary considerably according to the treatment, from a few thousand per mile for crack sealing to over $400,000 per mile for extensive paving, shoulder work and guardrail replacement.

The project depicted in the adjacent photo consists of a light paving treatment at roughly $100,000 per mile on Route 201A in Norridgewock. Although from a drivability standpoint, this roads functions adequately, considerable water damage due to a permeable service could result in significantly higher future costs.

- Road Condition - Quantification of the impact of rough roads is extremely difficult, if not futile. Nevertheless, MaineDOT regularly receives feedback from the traveling public expressing a desire for smooth highways. In addition to the public expectations, smooth roads are vital for several of Maine's paper mills. Although detailed information is proprietary, several Maine paper mills produce very high quality paper. During transport, this sensitive product can be damaged over bumpy highways. Industry officials have even indicated that smooth highways are just as important as access to and from paper mills.